



**3<sup>rd</sup> edition Marcellus Shale Gas Environmental Summit**  
**Environmental and operational implications of water use in shale gas extraction**  
*Pittsburgh, Pennsylvania, October 24 to 26, 2011*  
[www.shalegasevent.com](http://www.shalegasevent.com)

**PRE-CONFERENCE WORKSHOPS, 24 October 2011**

**9:00 – 11:00      Workshop A: Managing Waste and Water Through Bioremediation**  
(Continental breakfast served during workshop)

Bioremediation is a process in which micro-organisms are utilized to degrade organic contaminants into innocuous end products. The social and environmental responsible waste management that is related to the development of oil and natural gas resources has positive implications on operational economics. This workshop will offer practical insight into how bioremediation can be used *in-situ* and post-excavation to breakdown organic constituents. In addition, the valence state of inorganic contaminants can be altered reducing TDS and associated operational costs and liabilities. Ensuing discussions will focus upon the conditions needed for optimal efficiency of metabolizing micro-organisms when treating hydraulic fracturing wastewater, and other incidental and process-derived wastes. The benefits associated with the implementation of a bioremediation program, relative to exploration and production operations, will be demonstrated environmentally and economically. Attendees to this workshop will be better able to:

- Implement best management practices for water use
- Maximize beneficial reuse of water
- Manage costs associated with wastewater management

*Jason Rauhen, Director, HRL Compliance Solutions, Inc.*

*Maurice Foye, Vice President of Business Operations, HRL Compliance Solutions, Inc.*

**11:00 – 1:00      Workshop B: Permitting in a Changing Regulatory Climate**  
(Box lunch served during workshop)

Permitting processes for US onshore operations are often encumbered by a tangled web of regulations, paperwork, people interaction and ever-ongoing negotiations. While environmental permitting is paramount to executing field operations in sensitive environments, funding for these necessary and required activities is typically a small part of operator and transporter budgets. Pennsylvania is revising permits to comply with changing Federal regulations, to align with known and emerging best practices and to increase industry transparency. This workshop will explore the changing regulatory environment with a focus on navigating the permitting process in a timely manner. Attendees to this workshop will be better able to:

- Prepare for upcoming legislation in the state of Pennsylvania
- Comply with existing and new environmental regulations
- Understand the requirements of well permitting procedures

*Russ Krauss, Vice President of Business Development, Resource Environmental Solutions, LLC*

*Curtis Stambaugh, Partner, McNees, Wallace, & Nurick LLC*

*Jack Ubinger, Senior Vice President, Pennsylvania Environmental Council*



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**1:00 – 3:00      Workshop C: Solving the Public Relations Dilemma: Mitigating Misconception and Educating the Consumer**

New research shows that any previously held positive public sentiment on Marcellus Shale development is slowly eroding in traditional and social media circles. However, despite the environmental impacts of high volume hydraulic fracturing, Marcellus Shale and its wealth of reserves is really about people, opportunity, jobs, clean energy, and energy interdependence and security. This workshop will provide tactical techniques to help companies win the Marcellus Shale public relations war. Attendees to this workshop will be better able to:

- Employ strategies that boost public profiles
- Understand how local populations perceive hydraulic fracturing in the Marcellus play
- Engage in effective corporate social responsibility

*Kenneth S. Komoroski, Partner-in-Charge, Fulbright & Jaworski LLP*

**3:00 – 5:00      Best Management Practices in Advanced Hydraulic Fracturing Drilling Techniques**

Horizontal drilling and hydraulic fracturing technology is rapidly advancing, stimulating significant growth in shale gas extraction volume and promoting the need to establish benchmarked best management practices for safe drilling procedures. This session will investigate measures to optimize project development, well casing and completion, and minimize associated environmental impact. Attendees to this session will be better able to:

- Monitor technology to enhance stimulation treatments
- Assess potential operational challenges
- Ensure methods for environmentally safe hydraulic fracturing

*Doug Kepler, Manager Environmental Engineering, Seneca Resources*



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**MAIN CONFERENCE DAY 1, 25 October 2011**

**9:00 Chairman's Welcome**

**9:15 Opening Address: Pennsylvania State Legislature and Regulation of Liquids in the Marcellus Play**

Pennsylvania is contemplating the implementation of revised regulations pertaining to hydraulic fracturing. This Opening Address offers a critical look at the proposed legislation which will affect the issuance of drilling permits, water management, and environmental compliance. Updates issued during this session will also discuss the competitive nature of the gas drilling industry and its economic benefits for the state. Attendees to this session will be better able to:

- Understand the macroeconomic drivers influencing domestic energy policy
- Achieve environmental compliance
- Engage in responsible shale gas development

*Hon. Garth Everett, State Representative, 84<sup>th</sup> Legislative District, Pennsylvania State House of Representatives*

**10:00 Keynote Address: Federal Regulations for Environmental Protection of the Marcellus Shale Play**

Shale formations have the potential to more than double the world's gas reserves. However, negative public opinions surrounding the industry are driving ever more stringent environmental regulation. This session will provide updates on how the future of shale gas extraction in America is now being determined and whether regulatory parameters will be defined at the state or at the federal level.

Attendees to this session will be better able to:

- Minimize the environmental impact of drilling operations
- Meet federal and state standards for health, safety, and the environment
- Communicate the positive economic and technical truths of shale gas production to the public

*Shawn Garvin, Regional Administrator, Region 3, Environmental Protection Agency*

**10:45 Networking & Coffee**

**11:30 Interactive Panel: State Specific Environmental Regulation and Water Policies in Appalachia**

The Marcellus play reaches across several key states in the Appalachian region. This session will unite industry stakeholders from a cross section of Marcellus region states to compare and contrast drilling regulation, permitting procedures, and environmental compliance in the Marcellus play region. A series of short presentations will be followed by updates from West Virginia and Ohio, among others. Attendees to this session will be better able to:

- Understand state by state requirements for horizontal drilling
- Develop plans for extraction in less explored areas of the Marcellus play
- Adapt best management practices developed in other shale plays

*Tom Tugend, Deputy Chief, Oil & Gas Program, Department of Natural Resources, Ohio*

*Charlie Burd, President, Independent Oil & Gas Association of West Virginia*

*John R. Griffin, Secretary, Maryland Department of Natural Resources*

*Dr. John Martin, Consultant, JP Martin Energy Strategy LLC*

**12:30 Lunch**



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**1:45 Case study: Water Quality Management**

Latest industry trends now lend towards maximizing the reuse of water in order to minimize the disposal of wastewater. This session offers an investigative look at current and emerging technologies and their practical application in achieving best practices for water management. Attendees to this session will be better able to:

- Maximize the beneficial reuse of water in daily operations
- Integrate best management practices into existing operations
- Characterize the composition and quality of flowback water

*James Eddy Grey, Senior Vice President & Chief Operating Officer, Triana Energy*

**2:30 Marcellus Shale Amendments to the Pennsylvania Oil & Gas Act**

The Pennsylvania Environmental Council has proposed amendments to Pennsylvania's Oil & Gas Act to achieve two primary objectives: (1) reform the permit process to facilitate greater stakeholder input and site analysis; and (2) set clear and appropriate protection standards in light of the hydraulic fracturing process and the degree of infrastructure required for shale gas extraction. The proposed amendments have the related objective of increasing public confidence in the regulation of shale gas development and boosting overall environmental compliance of the industry. Attendees to this session will be better able to:

- Understand the amendments to the Oil & Gas Act that are being proposed
- Make informed decisions using stakeholder input and early stage planning for shale gas development in Pennsylvania
- Prepare for amendments to the well permitting process

*John W. Ubinger, Jr., Esq., Senior Vice President, Pennsylvania Environmental Council*

*John J. Walliser, Esq., Vice President of Legal and Regulatory Affairs, Pennsylvania Environmental Council*

**3:15 Networking & Coffee**

**3:45 Case Study: Value-Added Services for Local Community Outreach**

Studies have shown that local communities are generally supportive of extraction operations in their region if revenues are returned to areas experiencing growth. Methods designed to attribute economic benefits back to local populations including wealth creation from leasing activity, business growth, and tax impacts enable local partnerships and create transparency in the development of land lease agreements. This session will offer a tactical look at new ways to incorporate environmental stewardship into daily operations, provide opportunities for natural gas consumption from local shale gas wells, and mitigate negative perceptions through enhanced transparency and safe water management. Attendees to this session will be better able to:

- Engage local populations to effectively target misconception
- Create transparent partnerships with local stakeholders
- Work with landowners to prevent third party damage

*Gary Slagel, Senior Advisor Environmental Affairs, Consol Energy*



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**4:30 Realities of the New York State Drilling Moratorium**

Just last year, the New York State Senate approved a minimal nine-month delay in issuing permits for shale gas drilling. This session will provide an investigative look into the cumulative effects of operating hundreds of wells across the state as well as the potential guidelines that will be proposed for the issuance of drilling permits for high volume hydraulic fracturing in low permeability foundations.

Attendees to this session will be better able to:

- Understand the future of shale gas extraction in New York State
- Prepare for and comply with upcoming regulations
- Address concerns about health and safety from local communities

*Kathleen Malone, Region 2 Coordinator, Environmental Protection Agency*

**5:15 Close of Day 1**



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**MAIN CONFERENCE DAY 2, 26 October 2011**

**9:00 Chairman's Opening Remarks**

**9:15 Access to Local Water Resources**

Water is an essential component to any energy resource development. In the Marcellus play, where is the water coming from? This session offers practical insight into procedures that operators will need to have in place to maximize their access to water supplies. American Water will also deliver updates on how to access existing lines and how to obtain new installations extending to more remote drilling sites. Attendees to this session will be better able to:

- Ensure reliable access to local water supplies
- Understand restrictions governing the withdrawal of water
- Determine convenient site locations based on accessibility

*Sue Yenchko, Director of Governmental Affairs, Pennsylvania American Water*

**10:00 Spill Prevention and Remediation**

Spills affect soil, groundwater, and surface water. A series of 3 presentations will provide a critical look at federal and state regulations, as well as industry best practices, on how to prevent, minimize and remediate contamination. Attendees to this session will be better able to:

- Employ techniques in spill prevention
- React quickly and strategically in the case of an incident
- Understand the requirements of spill remediation

*Ron Borsellino, Director, Hazardous Site Clean-up Division, Region 3, Environmental Protection Agency*

*Beth Powell, Utilities Platform Leader, New Pig*

*William Burket, Regulatory Affairs Manager, EOG Resources, Inc.*

**11:00 Networking & Coffee**

**11:45 Integrated Systems Approach for Energy and Water: Transport, Use, Treatment and Security**

Each gas well in the Marcellus Shale uses 2 to 4 million gallons of water for drilling and fracturing and a typical Marcellus well development will in turn produce approximately 1.26 million gallons of flowback water. This session will discuss the sustainability of long term water management in shale gas extraction. Attendees to this session will be better able to:

- Cost effectively manage their use of water
- Maintain the environmental integrity of drill sites
- Understand the important role of water in delivering energy supply

*Mark Rigali, Manager, Energy Systems, Sandia National Laboratory*

**12:30 Lunch**



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#### **1:30 Case Study: Marcellus Test Site Project as an Environmental Assessment Tool**

Environmental monitoring conducted prior to drilling establishes a baseline from which to assess operational impact once drilling commences. This session offers an in-depth look at the Marcellus test site project and how its outcome will influence local environmental decisions. Attendees to this session will be better able to:

- Conduct environmental monitoring
- Minimize environmental impacts of drilling operations
- Adapt best management practices used in other shale plays

*Richard Hammack, Physical Scientist, Geosciences Division, National Energy Technology Laboratory*

#### **2:15 Stray Gas and the Risks of Groundwater Contamination**

Methane trapped in shallow rock between the surface and the Marcellus shale can escape into drinking water aquifers. This session will evaluate the potential impacts associated with gas-well drilling and fracturing on groundwater, discuss the outcome of recent studies on methane migration, and offer insight into how to combat the risks of contamination through the implementation of casing and cementing methods which conform to newly updated regulations. Attendees to this session will be better able to:

- Minimize potential for groundwater contamination
- Mitigate risks of methane migration
- Control how water use in hydraulic fracturing affects local wetlands and streams

*Stephen Osborn, Post Doctoral Research Associate, Duke University*

#### **3:00 Networking & Coffee**

#### **3:45 Long Term Planning for Shale Gas Extraction**

A shifting regulatory climate influenced by ongoing environmental impact assessments is a challenging obstacle to long-term planning for shale gas extraction. This session provides an in-depth look at strategies for planning in a state and federally regulated climate with particular focus on the role of natural gas in powering the national grid and promoting North American energy security. Attendees to this session will be better able to:

- Strategize community involvement plans to ensure positive public involvement
- Understand the role of shale gas in achieving domestic energy security
- Identify potential adverse impacts of diversified exploration and production

*Michael Worden, Petroleum Engineer, Bureau of Land Management*

#### **4:30 Case study: Alternatives to Public Water Treatment**

Water treatment is important because demand for treating wastewater from shale gas extraction is currently at about 9 million gallons per day in the state of Pennsylvania alone. In conjunction with proposed 2011 water quality discharge standards for the Marcellus region, water recycling efforts, as a means to eliminate flowback water disposal, is expected to play a significant role in assisting operators to achieve environmental compliance. This session discusses how best to incorporate alternatives to public water treatment into the operator's business model. Attendees to this session will be better able to:

- Maximize reuse of water
- Manage costs associated with water treatment and disposal
- Meet short and long-term environmental compliance goals

*Roger Myers, Manager of Completions, EXCO Resources*

#### **5:15 Close of Day 2**